

THE TAXONOMY OF SOME INDO-PACIFIC MOLLUSCA

PART 12. WITH REMARKS ON TWO AMERICAN GASTROPOD SPECIES

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Abstract. New geographical range extensions are recorded for *Nassarius (Hima) rotundus* (Melvill & Standen), *Neocancilla takiisaoi* (Kuroda) and *Glycymeris (Tucetona) pectunculus* (Linnaeus). *Chicoreus aculeatus* (Lamarck, 1822) is the correct name for *C. artemis* Radwin & D'Attilio, 1976, and *Coralliophila violacea* (Kiener, 1836) must be retained in nomenclature in preference to the homonymous *Fusus neritoideus* Lamarck, 1816. The taxon *Chicoreus trivialis* (A. Adams) is elucidated on the basis of its type-specimens and *Engina mactanensis* from the Philippines and *Mitra dondani* from the Western Pacific are described as new species. *Vexillum (Pusia) zythochroum* (Melvill) is a valid species from Florida, while the Mississippian Oligocene "*Vexillum (Costellaria) tallahalaensis*" Dockery in MacNeil & Dockery, is here re-assigned to *Mitrolumna (Cymakra)* in the family Turridae. The subfamilial turrid name Drilliinae Morrison, 1966, must replace the homonymous Clavinae Casey, 1904, and the family name Hamineidae Pilsbry, 1895, has priority over the homonymous Atyidae Thiele, 1925.

Family MURICIDAE

Genus *Chicoreus* Montfort, 1810

Chicoreus Montfort, 1810, Conchyl. Syst. 2:611. Type species (Opinion 911 of ICZN) *Murex ramosus* Linnaeus, 1758. Recent, Indo-Pacific.

Chicoreus aculeatus (Lamarck, 1822) (Figs. 1-3)

1822. *Murex aculeatus* Lamarck, Hist.nat.anim.s.vert. 7:163; 1842 Kiener, Spéc.gén.icon.coq. viv. 7:27, pl.39, fig.3.

1976. *Chicoreus artemis* Radwin & D'Attilio, Murex shells world, p.32, pl.4, fig.4 (nom. subst. pro *Murex aculeatus* Lamarck, 1822).

TYPE LOCALITY. None.

The taxon *Murex aculeatus* Lamarck, 1822, a member of the *Chicoreus* group, has had an eventful taxonomic history during the past 14 years. E.H. Vokes (1970) considered *Murex aculeatus* Lamarck, 1822, to be a homonym of *Aranea aculeata* Perry, 1811, and *Muricites aculeatus* Schlotheim, 1820 (= *Tympanotonos* spec.), and E.H. Vokes (1971) confirmed her 1970 treatment of homonymy. Cernohorsky (1971)

disagreed with E.H. Vokes' interpretation of the Law of Homonymy as laid down by the Code of the International Commission on Zoological Nomenclature (1961). E.H. Vokes (1972) gave a detailed explanation as to her reasons for considering *Murex aculeatus* Lamarck to be a homonym.

Hubbard (1973) disagreed with E.H. Vokes' interpretation of the Law of Homonymy and stated that since *Murex* and *Muricites* are not homonyms, *Murex aculeatus* Lamarck, 1822, cannot be a homonym of *Muricites aculeatus* Schlotheim, 1820.

Fair (1976) followed E.H. Vokes' interpretation and considered *Chicoreus aculeatus* (Lamarck) to be a homonym requiring a replacement name.

Radwin & D'Attilio (1976) also considered *Murex aculeatus* Lamarck, 1822, to be a homonym of *Muricites aculeatus* Schlotheim, 1820, and proposed *Chicoreus artemis* as a replacement name.

D'Attilio (1979) illustrated the variability of *Chicoreus aculeatus* but continued using *C.artemis* for the species.

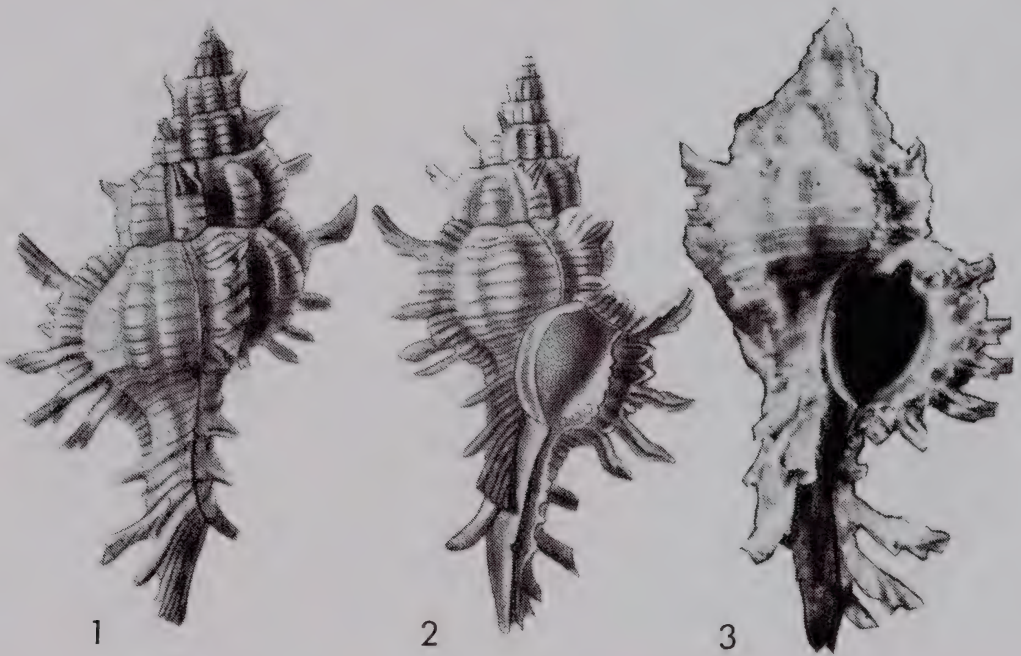
Houart (1981, 1983a) followed E.H. Vokes and used *Chicoreus artemis* Radwin & D'Attilio in preference to *C.aculeatus* (Lamarck).

Abbot & Dance (1982) considered *Chicoreus aculeatus* (Lamarck) as the valid taxon, and placed *C.artemis* Radwin & D'Attilio in synonymy.

Mühlhäusser & de Couet (1982) and de Couet & Mühlhäusser (1983) disagreed with E.H. Vokes' and Houart's interpretation of the Code of ICZN on homonymy and considered *Chicoreus aculeatus* (Lamarck) as the valid name for the species.

With such a divided opinion concerning the interpretation of the Law of Homonymy (Article 57 of the Code of ICZN) among workers, it became clear that no taxonomic stability could ever be achieved, and this author requested the International Commission on Zoological Nomenclature for a ruling in this case. The reply received from Mr. R.V. Melville, Secretary of the ICZN (letters dated 18 July 1983 and 7 September 1983) confirmed the taxon *Murex aculeatus* Lamarck, 1822, as the valid name for the species later re-named *Chicoreus artemis* Radwin & D'Attilio. The Secretary pointed out that no primary homonymy is involved between *Aranea aculeata* Perry, 1811, *Muricites aculeatus* Schlotheim, 1820, and *Murex aculeatus* Lamarck, 1822, and secondary homonymy is also excluded since Perry's *aculeata* belongs to *Murex s.str.*, Schlotheim's *aculeatus* is a *Tympanotonos* species, family Potamididae, and Lamarck's *aculeatus* belongs to *Chicoreus* Montfort. In addition, *Muricites* Schlotheim is unavailable under article 20 of the Code of ICZN.

Now that the Commission has clarified the usage of the taxon *Chicoreus aculeatus* (Lamarck), muricid specialists should determine the real identity of the species through designation of a neotype, since the type-specimen is no longer extant, the original description is ambiguous in so far that it could equally well apply to some other closely



Figs. 1-3. *Chicoreus aculeatus* (Lamarck). 1,2. Illustration from Kiener (1842, pl.39, fig.3). 3. Specimen from Momi lighthouse, Viti Levu, Fiji Is, 27m; 35.0mm.

related species, and the species has not been illustrated by the original author. Greater importance should be given to Kiener's interpretation of *Chicoreus aculeatus* (Lamarck) [Kiener, 1842, pl.39, fig.3] (Figs. 1,2), who examined specimens from the Lamarck collection and the "museum" (Museum National d'Histoire Naturelle, Paris) rather than a subsequent interpretation by Reeve (1845, pl.15, sp.60). Reeve's illustrated "*Murex aculeatus*" has been recently described as *Chicoreus nobilis* by Shikama (1977).

***Chicoreus trivialis* (A. Adams, 1854)**

(Figs. 4-8)

1854. *Murex trivialis* A. Adams, Proc.Zool.Soc.Lond. Pt.21:71; 1879 Sowerby, Thes. Conchyl. 4(33/34):16, pl.9, fig.80.
 1982. *Chicoreus trivialis* (A. Adams), Abbott & Dance, Compendium Seashells p.137, row 2, second fig. from left.

TYPE LOCALITY. None.

Type specimens. Two syntypes of *C.trivialis* (A. Adams) are in the British Museum (Nat. Hist.), London, No. 1980136, and the larger specimen measuring length 37.7 mm, width 18.9 mm, is here selected as the lectotype (Figs. 4,5). The lectotype has 7 mature whorls and a missing protoconch, 3 varices per whorl, first 4 post-embryonic whorls with 2 intervarical nodes, last 3 whorls with only 1 intervarical node, outer lip with 7 denticles, columella smooth. The smaller paralectotype (Figs. 6-8), length 24.3 mm, width 12.5 mm, has 6 mature whorls and a protoconch of 1 3/4 embryonic whorls, 2 intervarical nodes and c. 9 lirate denticles on the outer lip.



Figs. 4-9. 4-8. *Chicoreus trivialis* (A. Adams). 4,5. Lectotype B.M.(N.H.) No. 1980136; 37.7mm. 6-8. Paralectotype B.M.(N.H.) No. 1980136; 24.3mm. 9. *C.paini* Houart, paratype; 45.2mm (from Houart 1983, pl.1. fig.4).

The identity of *Chicoreus trivialis* (A. Adams) has been frequently misinterpreted in literature. Houart (1983b) in comparing his new species *C.paini* with *C.trivialis*, remarked: "the true *C.trivialis* is very well illustrated in Radwin & D'Attilio, 1976, pl.6, fig.12". The species illustrated by Radwin & D'Attilio (1976), however, is very dissimilar to the existing two syntypes of *C.trivialis*, and is most certainly a form of *C.brunneus* (Link). Houart (1983b) states that *C.trivialis* has only 1 intervarical node, but the lectotype has the upper spire whorls with 2 intervarical nodes and the last 3 whorls with 1 intervarical node, and the paralectotype has 2 intervarical nodes.

Chicoreus trivialis is correctly illustrated by Abbott & Dance (1982: 137). In view of the misinterpretation of the identity of *C.trivialis*, the description of *C.paini* Houart, 1983 (synonym is *C.kengaluae* Mühlhäusser & Alf, 1983) should be re-examined because the paratype of *C.paini* from the Banda Sea, Indonesia (Fig.9) appears to be *C.trivialis* (A. Adams).

Family CORALLIOPHILIDAE

Genus *Coralliophila* H. & A. Adams, 1853

Coralliophila H. & A. Adams, 1853, Gen.Rec.Moll. 1:135. Type species by SD (Cossmann, 1903) *Purpura neritoidea* (Lamarck) = *P.violacea* Kiener, 1836. Recent, Indo-Pacific.

Rehder (1980) accepted Cossmann's (1903) earlier type designation for the genus. This type designation meets the requirements of Article 69(a)(i) of the Code of ICZN.

Coralliophila violacea (Kiener, 1836)

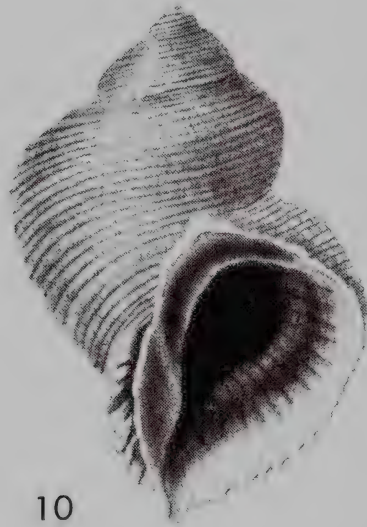
(Fig.10)

1788. "*Murex neritoideus*" Chemnitz, Neues syst.Conchyl.Cab. 10:280, pl.165, figs. 1577,1578 (non binomial).
1791. *Murex neritoideus* Gmelin, Syst.Nat. ed.13:3559 (ref. Chemnitz, op.cit., figs. 1577,1578 (non Linnaeus, 1767; nec Gmelin, 1791, p.3537)).
1816. *Fusus neritoideus* Lamarck, Tabl.Encycl.Méth. p.8, pl.435, figs. 2a,b.
1822. *Pyrula neritoidea* Lamarck, Hist.nat.anim.s.vert. 7:146 (ref.Chemnitz, op.cit., figs. 1577,1578; Gmelin, 1791, p.3559 and Lamarck, 1816, pl.435, figs.2a,b).
1833. *Purpura neritoidea* (Lamk.) Quoy & Gaimard, Voy.L'Astrolabe 2:582, pl.38, figs. 22-24.
1836. *Purpura violacea* Kiener, Spéc.gén.icon.coq.viv. 8:77, pl.19, fig.57 (states that Lamarck placed the species in *Pyrula* with the name *P.neritoidea*); 1846 Reeve, Conch. Icon. pl.12, fig.70.
1836. *Purpura diversiformis* Kiener, *ibid.* 8:pl.19, fig.57.
1846. *Purpura squamulosa* Reeve, Conch.Icon. pl.12, fig.68.
1936. *Coralliophila violacea* (Kiener), Hirase, Coll.Jap.shells ed.5:81, pl.111, fig.8; 1941 Wenz, Handb.Palaeozool. 6(5):1130, fig.3209; 1952 Kuroda & Habe, Check-list & Bibl.Rec.Moll.Japan p.50; 1954 Kira, Col.illustr. shells Japan p.51, pl.25, fig.2; 1957 Demond, Pacific Sci. 11(3):315; 1960 Azuma, Cat.Moll.Okinoshima Japan p.37; 1961 Rippingale & McMichael, Queensld. & Gt.Barrier reef shells p.103, pl.13, fig.8; 1963 Shikama, Select.shells world col. 1:77, pl.61, fig.18; 1967 Orr-Maes, Proc.Acad.Nat.Sci.Philadelphia 119(4):133, pl.2, fig.B; 1967 Habe & Kosuge, Stand.book Jap.shells col. 3:73, pl.29, fig.4; 1972 Cernohorsky, Mar. shells Pacific 2:131, pl.37, fig.5; 1974 Quirk & Wolfe, Seashells Hawaii p.11, fig.7; 1975 Coleman, What shell is that p.142, fig.422; 1975 Salvat & Rives, Coquill.Polynésie p.310, fig.189; 1978 Hinton, Guide Austral.shells p.39, fig.2; 1979 Kay, Hawaiian mar.shells p.255,

- fig.90c; 1980 Rehder, Smithsonian contrib.Zool. No.289:75.
 1957. *Coralliophila (sic) violacea* (Kiener), Kaicher, Indo-Pacific sea shells pl.5, fig.13.
 1966. *Coralliobia violacea* (Kiener) Habe & Kosuge, Shells world col. 2:56, pl.20, fig. 17.
 1971. *Coralliophila (Coralliophila) neritoidea (sic)* (Lamarck), Keen, Sea shells trop.W.America ed.2:543, fig.1061.
 1974. *Coralliophila neritoidea* (Lamarck), Dance, Encycl.shells p.139, fig. left column; 1982 Abbott & Dance, Compend.seashells p.155, fig.bottom left; 1984 D'Attilio & Myers, Trans.San Diego Soc.Nat.Hist. 20(5):93, figs.29-31.

TYPE LOCALITY. "Port Dorey, New Guinea" [= Teluk Dore Hum, Geelvink Bay, West Irian] (*violacea* – here designated); none (*Murex neritoideus* Gmelin and *Fusus neritoideus* Lamarck); Nicobar Is; Port Dorey, New Guinea and New Holland (*diversiformis*); Ticao I, Philippines (*squamulosa*).

DISTRIBUTION. Tropical Indo-Pacific.



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Fig. 10. *Coralliophila violacea* (Kiener). Type figure (from Kiener 1836, pl.19, fig.57).

Despite wide-spread useage of the epithet *violacea* Kiener in malacological literature, Keen (1971), Dance (1974), Abbott & Dance (1982) and D'Attilio & Myers (1984) re-introduced the homonymous taxon *Coralliophila neritoidea* (Lamarck) into coralliophilid systematics, but Keen (in litt. 3-XI-1980) reverted to *C.violacea* as the correct name. It is not only undesirable but taxonomically confusing to have two names for one and the same species in molluscan literature, especially if the species is the type-species of the genus *Coralliophila* H. & A. Adams, and it is imperative that the correct name applicable to the taxon be established.

From the description and illustrations of the taxa *Murex neritoideus* Gmelin, 1791 (non Linnaeus, 1767) and *Fusus neritoideus* Lamarck, 1816, it can be clearly established that these two taxa in question are one and the same biological entity

and not only congeneric but also conspecific. It is probable that Lamarck (1816) intended a generic re-assignment of Gmelin's *neritoideus* to *Fusus*, although there is no evidence of this in Lamarck's (1816) work where all taxa lack author's names. Six years later, however, Lamarck (1822) re-assigned *neritoideus* to the genus *Purpura* but this time appended a reference to "Gmelin, p.3559" and thus clearly associating the name with an earlier author. Kiener (1835-36) recognized Lamarck's homonymous useage of *neritoideus* and proposed the replacement name *Purpura violacea*. This taxon, in the combination *Coralliophila violacea* (Kiener) has been used almost exclusively until 1971.

Fusus neritoideus Lamarck, 1816, is not only a subjective synonym of *Murex neritoideus* Gmelin, 1791, but since both taxa belong to the same genus *Coralliophila*, the former is a junior secondary homonym of the latter (Art. 59(b) of the Code of ICZN). The amended Code of ICZN (Art. 59(b)(i)) makes it also quite clear that a junior secondary homonym rejected prior to 1961 is permanently rejected.

Rehder (1980) stated that Kiener mentioned the localities Nicobar Is, Port Dorey, New Guinea and "New Caledonia" for his *Purpura violacea*. The latter locality must be a *lapsus* for "Nouvelle-Hollande" [= New Holland = Australia] cited by Kiener (1835-36), and one of the original cited localities must be selected as the type locality. I have re-designated "Port Dorey, New Guinea" (now Teluk Dore Hum, Geelvink Bay, W. Irian) as the type locality, this being the centre of the species distributional range.

Family BUCCINIDAE

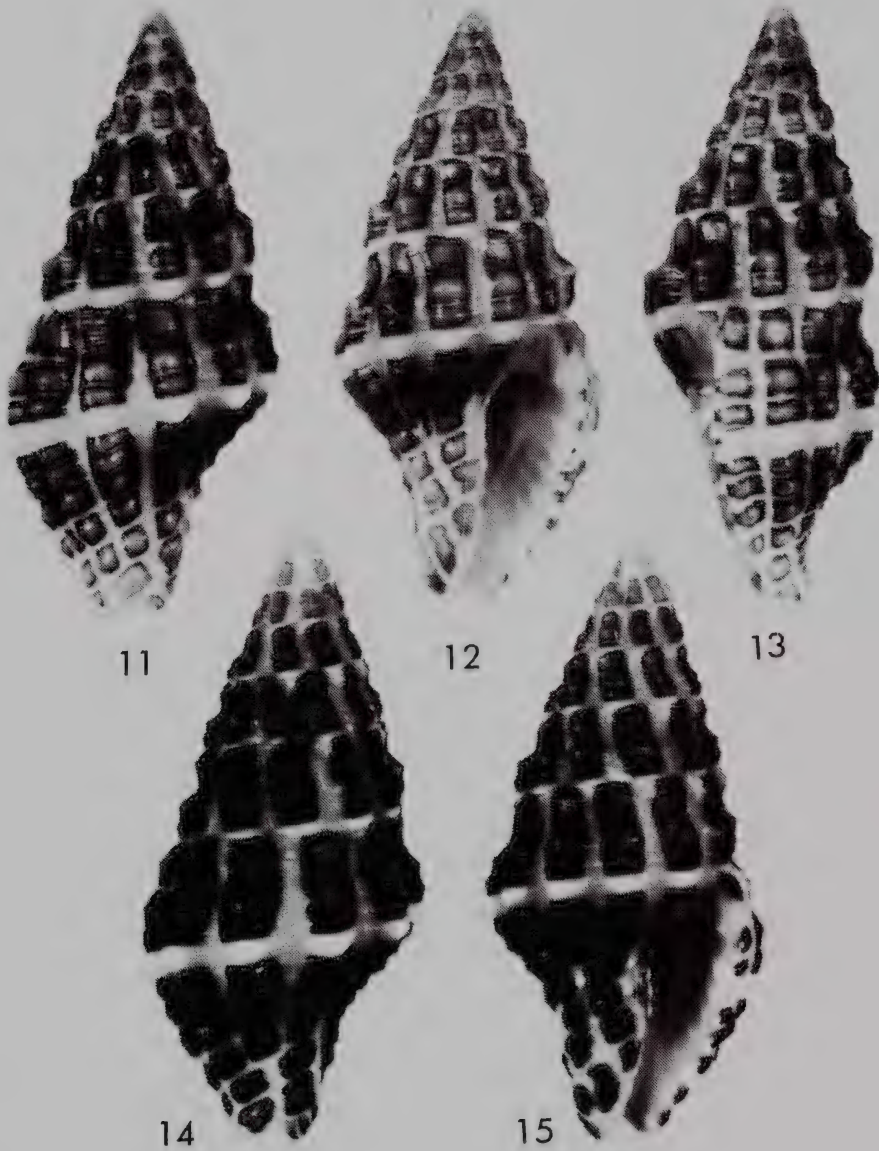
Genus **Engina** Gray, 1839

Engina Gray, 1839, Zool.Capt.Beechey's Voy. "Blossom" p.112. Type species by SD (Gray, 1847) *E.zonata* Gray, 1839 = *Purpura turbinella* Kiener, 1836. Recent, Caribbean.

Engina mactanensis sp. n.

(Figs. 11-16)

Shell up to 12.0 mm in length (range 7.6mm – 12.0mm), solid, elongate-biconic, body whorl centrally angulate, sutures adpressed and wavy, width 42-48% of shell-length, teleoconch of 5½-6¼ concavo-convex whorls, protoconch of 3-3¼ shining white, smooth embryonic whorls which are ornamented with small, irregular, round or elliptical brown spots. Whorls prominently concave below sutures, sculptured with prominent, roundly angulate axial ribs which number from 10-11 on the penultimate and from 9-11 on the body whorl. Laterally elongate nodules form on axial ribs and number from 3-4 on the penultimate and from 9-11 on the body whorl, anterior row of sutural nodules compressed; numerous macroscopic spiral striae encircle shell on all whorls. Aperture about equal in height to the spire, moderately narrow, outer lip thickened and with 6-7 shortly lirate denticles, first posterior denticle larger and forming part of anal canal, columella calloused and prominently radially lirate up to parietal denticle, siphonal canal straight or only weakly curved, siphonal notch distinct. Base colour bluish-white or pale grey, axial ribs ornamented with quadrate or rectangular, close-set, tan-coloured spots which are ringed with dark brown, anterior row of sutural nodules and central row of nodules on body whorl white; aperture white, edge of outer lip with small brown spots.

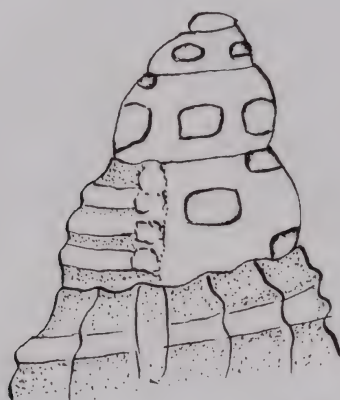


Figs. 11-15. *Engina mactanensis* sp. n. 11-13. Holotype AIM No. TM-1371; 11.1mm.
14,15. Paratype from Punta Engano, Mactan I, Cebu, Philippines; 10.4mm.

TYPE LOCALITY. Punta Engano, Mactan I, Cebu, Philippines, in shell nets at a depth of 300m.

Holotype. In the Auckland Institute and Museum No. TM-1371, length 11.1 mm, width 5.0 mm, height of aperture 5.6 mm (Figs. 11-13).

Paratypes. A total of 105 paratypes have been examined: 102 came from the type locality, 2 from Balicasag I, Bohol, Philippines, 146 m, and 1 from Bohol Straits, Philippines, 92m-110 m. Paratypes are in the Australian Museum, Sydney, the British Museum (Natural History), London, the National Museum of Natural History, Smithsonian Institution, Washington, and coll. G.T. Watters, Ohio State University, U.S.A.



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Fig. 16. Protoconch of *Engina mactanensis* sp. n.

This new *Engina* species is to date known only from the Philippine Islands where it appears to be reasonably common at depths ranging 100-300m. *Engina mactanensis* is not similar to any previously described *Engina* species, and is easily recognised by features of concave presutural ramp and the tan-coloured ocellated spots on the axial ribs and protoconch.

Family NASSARIIDAE

Genus *Nassarius* Dumeril, 1806

Nassarius Dumeril, 1806, Zool.Analytique p.166. Type species by SM (Froriep, 1806) *Buccinum arcularia* Linnaeus, 1758. Recent, Indo-Pacific.

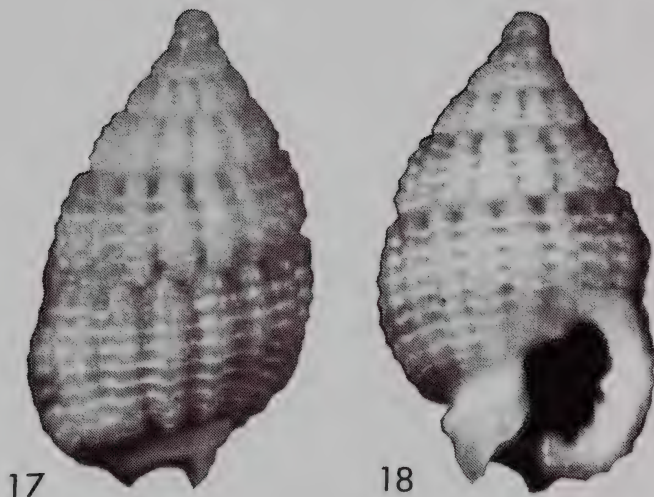
Subgenus *Hima* Leach in Gray, 1852

Hima Leach in Gray, 1852, Moll.Britt.Synop. P.123. Type species by SD (Marwick, 1931) *Buccinum minutum* Pennant, 1777 = *B.incrassatum* Ström, 1768. Recent, Mediterranean.

Nassarius (Hima) rotundus (Melvill & Standen, 1896) (Figs.17, 18)

1896. *Nassa (Niotha) rotunda* Melvill & Standen, J.Conch. 8:273, pl.9, fig.2; 1899 Melvill & Standen, J.Linn.Soc.Lond.Zool. 27:160.

1972. *Nassarius (Hima) rotundus* (Melvill & Standen), Cernohorsky, Rec. Auckland Inst.Mus. 9:187, fig.155; 1984 Cernohorsky, Bull.Auckland Inst.Mus. 14:178, pl.37, figs.15-17.



Figs. 17,18. *Nassarius (Hima) rotundus* (Melvill & Standen). N.W. side of Heron I, Capricorn group, Qld., Australia; 6.2mm.

TYPE LOCALITY Lifu, Loyalty Is.

Although reported by Melvill & Standen (1899) from Warrior I, Torres Straits, all previous specimens of *N. rotundus* examined originated from Lifu I, Loyalty Is. The collection of a specimen from the N.W. side of Heron I, Great Barrier reef, Australia (*leg.* R. C. Willan) confirms the species range-extension to the East Australian mainland.

Family MITRIDAE

Genus *Mitra* Lamarck, 1798

Mitra Lamarck, 1798, Tabl. Encycl. Meth. pl. 369. Type species by T *Voluta mitra* Linnaeus, 1758. Recent, Indo-Pacific.

Mitra dondani sp. n.

(Figs. 19-24)

Shell moderate in size, up to 50.0 mm in length, fusiformly-elongate, width 24%-28% of length, solid, shining and smooth in appearance, teleoconch of $7\frac{1}{2}$ - $8\frac{1}{2}$ weakly convex whorls, protoconch missing in all specimens examined, sutures adpressed. Early mature whorls granulose, axial sculpture disappearing and spiral sculpture becoming very fine and weak on later whorls; penultimate whorl with 20-30 weak, fine, macroscopically finely punctate spiral striae, body whorl with 56-68 striae, striae becoming slightly wider spaced on siphonal fasciole. Aperture very narrow, about equal in height to the spire, height 48%-51% of length, smooth within, outer lip weakly convex, thickened and simple at margin in adult specimens, columella not calloused and only with a narrow shining glaze and with 6-8 (usually 7) close-set, oblique folds. Base colour white to pale bluish-white, ornamented with dark brown, moderately wide-spaced axial streaks which extend from suture to suture on spire whorls but are interrupted centrally on body whorl by a broad zone of the base col-

our; additional ornamentation consists of moderately straight dark brown axial lines which are bisected by stronger primary and finer secondary lines of the same colour; penultimate whorl with 3 main spirals plus 1-3 intermediate ones, body whorl with 9-13 primary lines and 5-9 intermediate ones, aperture white, edge of outer lip with 5-10 small brown spots.

TYPE LOCALITY. Panlao, Bohol, Philippines, by net in c. 220 m.

DISTRIBUTION. From the Philippines to the Ryukyu Islands and Papua New Guinea.

Holotype. In the Auckland Institute and Museum No. TM-1370, length 36.0 mm, width 9.6 mm, height of aperture 18.5 mm (Figs. 19,20).

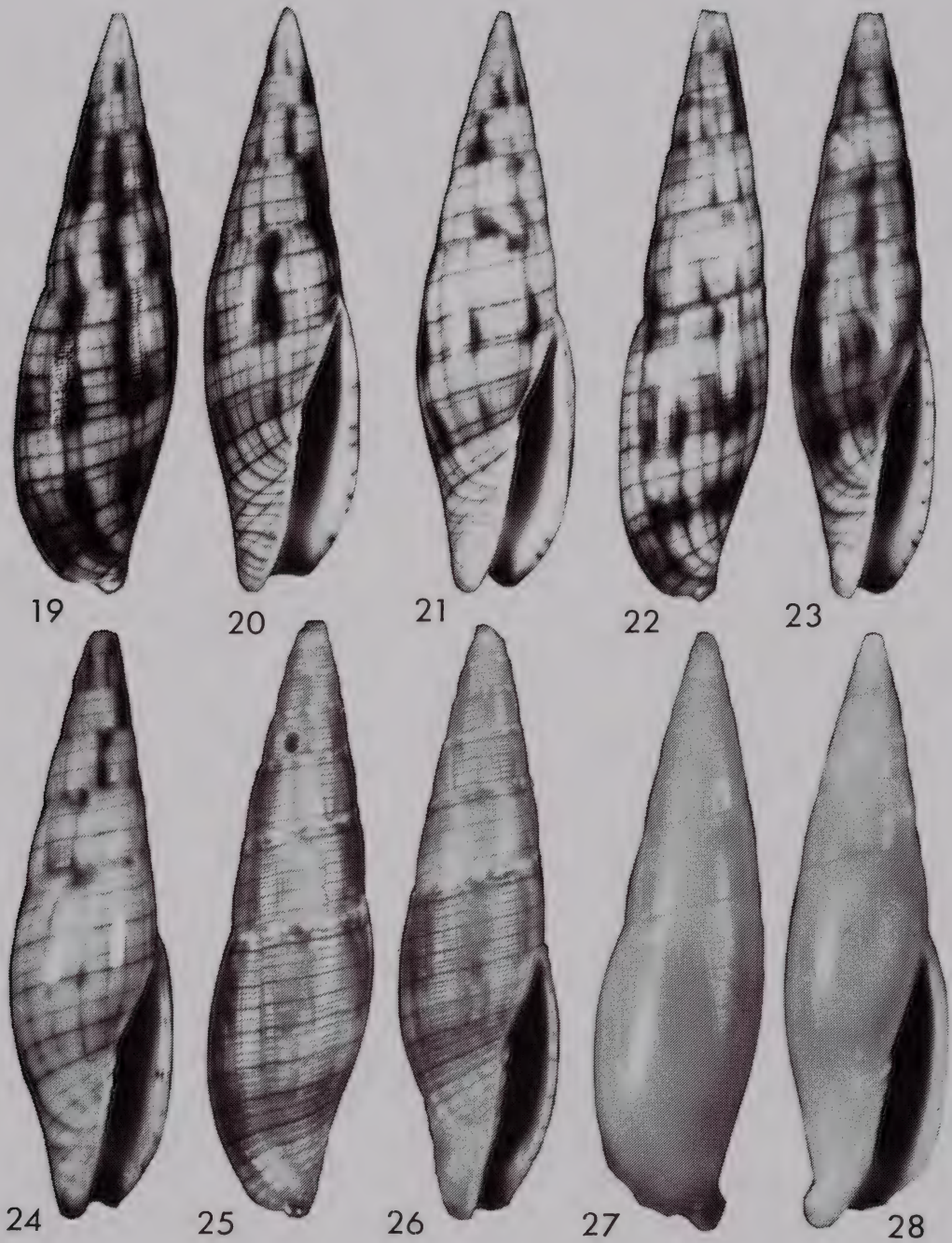
Paratypes. Paratypes from the type locality are in coll. P.Clover, V.Dan, H.Eker and AIM; paratype from Punta Engano, Mactan I, Philippines, in coll. S.Gori, length 45.0 mm, width 11.5 mm; paratypes from Talikud I, Davao, Philippines, in coll. A.Deynzer, with the largest paratype measuring 50.2 mm; paratypes from Seragaki, Okinawa, Ryukyu Islands, in coll. A.Deynzer; paratype length 31.0 mm, width 6.5 mm, from off Kimbe, New Britain, Papua New Guinea, in coll. A.Richards.

Mitra dondani resembles *M.deynzeri* Cernohorsky (Figs. 25,26), *M.ancillides* Broderip (Figs. 27,28) and *M.ustulata* Reeve (Figs. 29,30), and diagnostic characters separating these four species are given in Table 1. *M.dondani* does have a glossier shell than the other three species and the sculpture is considerably finer than in *M.ustulata* and *M.deynzeri*. Only *M.deynzeri* has a similar colour pattern, but the brown axial lines in *M.dondani* are absent in *M.deynzeri*, and the distinct white-spotted, bi-cordate sutural girdle of *M. deynzeri* is lacking in the other three species.

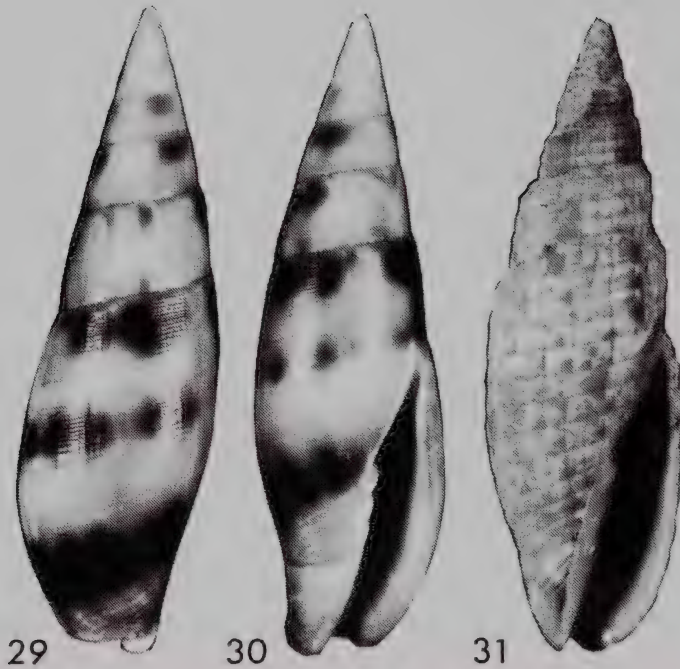
The species is named for Mr. Donald Dan, Oak Brook, Illinois, U.S.A., who many years ago made molluscan material from the Philippines available for research.

Table 1. Main diagnostic characters of 4 related Mitridae species.

Characters	<i>dondani</i>	<i>deynzeri</i>	<i>ancillides</i>	<i>ustulata</i>
Length in "mm"	34.0-50.0	13.0-27.0	19.0-24.0	29.0-53.0
Width in % of length	24%-28%	22%-29%	27%-30%	29%-39%
Spiral striae on penult whorl	20-30	7-17	22-23	8-24
Spiral striae body whorl	56-68	28-45	60-65	25-60
Sutural girdle	absent	present	absent	absent
Columellar folds	6-8	5-6	5-7	6-8
Brown spiral lines on penult whorl	3 + 1 to 3	4-7	absent	absent
Brown spiral lines on body whorl	9-14+ 5-9	10-15	absent	absent
Brown axial lines	present	absent	absent	absent
Distribution	Philippines - Ryukyu Is	Indo-West Pacific	Tuamotus - Marquesas	Indo-Pacific



Figs. 19-28. 19-24. *Mitra dondani* sp. n. 19,20. Holotype AIM No. TM-1370; 36.8mm. 21. Paratype from Punta Engano, Mactan I, Cebu, Philippines; 35.7mm. 22,23. Slender paratype from same locality; 40.9 + mm. 24. Paratype from Seragaki, Okinawa, Ryukyu Is; 36.5 + mm. 25,26. *M. deynzeri* Cernohorsky, holotype AIM No. TM-1363; 26.7 + mm. 27,28. *M. ancillides* Broderip, holotype B.M. (N.H.) No. 1967712; 23.8mm.



Figs. 29-31. 29,30. *Mitra ustulata* Reeve. Helengeli, Maldive Is, 25m; 28.5mm. 31. *Neocancilla takiisaoi* (Kuroda). E. of Pt. Cartwright, Mooloolaba, N. of Brisbane, Qld., Australia, 15m; 46.6mm.

Genus *Neocancilla* Cernohorsky, 1966

Neocancilla Cernohorsky, 1966, *Veliger* 9(2):110. Type species by OD *Voluta papilio* Link, 1807. Recent, Indo-Pacific.

Neocancilla takiisaoi (Kuroda, 1959)

(Fig.31)

1958. *Mitra taki-isaoi* Kuroda, *Venus:Jap.J.Malac.* 20(2):pl.21, fig.10 (nomen nudum).

1959. *Mitra (Scabricola) takiisaoi* Kuroda, *Venus:Jap.J.Malac.* 20(4):326; 1963 Shikama, *Select.shells world col.* 1:pl.74, fig.10.

1970. *Neocancilla takiisaoi* (Kuroda), Cernohorsky, *Bull.Auckland Inst.Mus.* No.8:18, textfig.108 (radula), pl.7, fig.12 (shell); 1978 Cernohorsky, *Rec.Auckland Inst.Mus.* 15:58, fig.6 (shell), fig.7 (SEM of radula); 1980 Pechar, Prior & Parkinson, *Mitre shells Pacific & Indian Oceans*, frontispiece.

TYPE LOCALITY. Hachijo-jima, Izu-schichito Is, Japan.

Originally described from Japan, the species has been subsequently collected in the Pitcairn Is by the "Pele" expedition, and further collections were made in the Kermadec Is and New Caledonia. The specimen collected alive E. of Pt. Cartwright, Mooloolaba, N. of Brisbane, Queensland in only 15m depth (*leg.* R.C. Willan) is the first record of this rare species from the East Australian mainland.

Family COSTELLARIIDAE

Genus **Vexillum** Röding, 1798

Vexillum Röding, 1798, Mus. Bolten. p.138. Type species by SD (Woodring, 1928) *V. plicatum* Röding, 1798 = *Voluta plicaria* Linnaeus, 1758. Recent, Indo-Pacific.

Subgenus **Pusia** Swainson, 1840

Pusia Swainson, 1840, Treat. Malac. p.320. Type species by M *P. microzonis* (Lamarck) = *Mitra microzonias* Lamarck, 1811. Recent, Indo-Pacific.

Vexillum (Pusia) zythochroum (Melvill, 1888) (Figs. 32-36)

1888. *Mitra zythochroa* Melvill, J. Conch. 5:287, pl.2, fig.24.

TYPE LOCALITY. None.

Type specimen. Holotype in the National Museum of Wales, Cardiff No.1955.158.430., length 10.2 mm, width 4.0 mm, height of aperture 4.6 mm. The type has 7 whorls and a broken protoconch, 24 axial ribs and 5 spiral threads on the penultimate and 24 ribs, 10 spiral threads and 11 nodulose basal cords on the body whorl, a row of small nodules on suture, 8 strong lirae on outer lip, and 5 oblique folds on columella (Figs. 32,33).

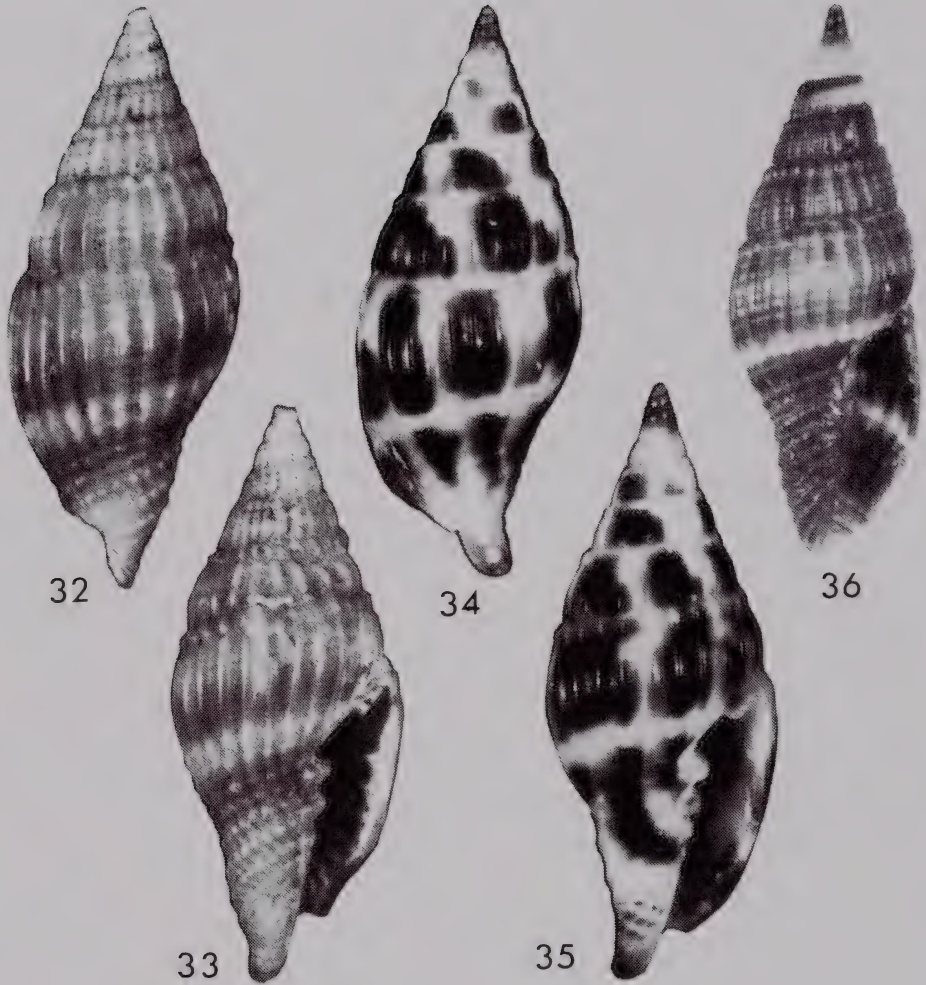
Recent specimens from Pompano beach, Florida, U.S.A., collected in 12-18 m depth under coral rubble and rock piles (*leg.* L.C. Hill, Miami, Florida), have 6 mature whorls and 4 glassy-brown embryonic whorls, 26 axial ribs on the penultimate and the same number on the body whorl, weak or more prominent spiral striae, a row of sutural nodules, lower half of the body whorl with 10-11 rows of nodulose cords, 5 columellar folds, 5 lirae on the interior of the outer lip and a prominent parietal denticle. Shells are either creamy-white, ornamented with chocolate-brown blotches or uniformly chocolate-brown with 2½ post-embryonic whorls white (Figs. 34-36).

The species is closely similar to the Indo-Pacific *V. (P.) catenatum* (Broderip, 1836). Morphological differences between the two species are yet to be established, but it is suspected that *V. (P.) catenatum* will prove to have fewer embryonic whorls than *V. (P.) zythochroum*.

Family TURRIDAE

Subfamily DRILLIINAE Morrison, 1966

Clavinae (*ex-Clavini*) Casey, 1904, Trans. Acad. Sci. St. Louis 14(5):158 (non McCrady, 1859).
Clavinae Powell, 1942, Bull. Auckland Inst. Mus. 2:29, 32, 84 (non McCrady, 1859).
Drilliinae Morrison, 1966, Ann. Repts. Americ. Malac. Union p.2.



Figs. 32-36. *Vexillum (Pusia) zythochroum* (Melvill). 32,33. Holotype National Museum of Wales, Cardiff No. 1955.158.430.; 10.2mm. 34,35. Specimen from Pompano beach, E. Florida, U.S.A., 12m-18m; 10.4mm. 36. Slender immature specimen from same locality; 9.7mm.

The usage of the family-group name Clavidae in Coelenterata has been brought to my attention through a recent paper by His Majesty the Emperor of Japan (Hirohito 1983). The Emperor (through courtesy of Dr. T. Habe) has informed me that the family-group name Clavidae has been used in Hydrozoa since its establishment by McCrady in 1859.

Since all family-group names are of co-ordinate status in nomenclature (Article 36 of the Code of ICZN), Clavidae McCrady, 1859 (based on *Clava* Gmelin, 1791, which is not a homonym of the suppressed "*Clava*" Martyn, 1784) in Coelenterata has chronological priority over Clavinae Casey, 1904 (based on *Clavus* Montfort, 1810) in the family Turridae, in Mollusca. Both family-group names are in frequent

use in Coelenterata (from Allman 1872 through to Hirohito 1983) and in Mollusca (Powell 1966; Keen 1971; Maes 1983; Cernohorsky 1983, etc.). It should also be pointed out that some authors erroneously credit Powell (1942) rather than Casey (1904) with the authorship of the molluscan Clavinae.

I agree with Keen (1971) and Maes (1983) that *Drillia* Gray, 1833, is assignable to the same subfamily as *Clavus* Montfort, 1810, and Drilliinae Morrison, 1966, will thus replace the homonymous molluscan Clavinae Casey, 1904.

Subfamily MITROMORPHINAE Casey, 1904

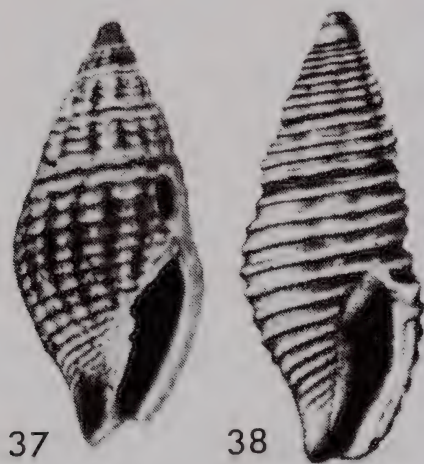
Genus **Mitrolumna** Bucquoy, Dautzenberg & Dollfus, 1883

Mitrolumna Bucquoy, Dautzenberg & Dollfus, 1883, Mol.mar.Roussillon 1(3):115, 121. Type species by OD *Mitra olivoidea* Cantraine, 1835. Recent, Mediterranean.

Subgenus **Cymakra** Gardner, 1937

Cymakra Gardner, 1937, U.S.Geol.Surv.Prof.Pap. 142F:421. Type species by OD *C.poncei* Gardner, 1937 = *Mitromorpha mitrodita* Gardner & Aldrich, 1919. Miocene of the Eastern United States.

Species of *Cymakra* also have a paucispiral protoconch, biplicate columella and lirate interior of the outer lip as in *Mitrolumna*, but shells are more biconic, less inflated, with more distinct and sometimes channeled sutures and a coarser sculpture of spiral cords, axial ribs or granules.



Figs. 37,38. 37. *Mitrolumna (Cymakra) tallahalaensis* (Dockery in MacNeil & Dockery). Holotype USMN. No. 376674; 5.0mm. 38. *M (C.) mitrodita* (Gardner & Aldrich). Illustrated holotype; 5.5mm (from Gardner & Aldrich 1919, pl.1, fig.7).

Mitrolumna (Cymakra) tallahalaensis (Dockery in MacNeil & Dockery, 1984) (Fig.37)

1984. *Vexillum (Costellaria) tallahalaensis* Dockery in MacNeil & Dockery, Bull. Mississippi Dept. Nat. Res. Bur. Geol. 124:162, pl.58, fig.12.

TYPE LOCALITY. MGS 93, stream bed of West Tallahala creek, Smith Co., Byram formation, Vicksburg group, Lower Oligocene of Mississippi.

This Vicksburg Oligocene species has mistakenly been placed in the wrong genus and family by Dockery (in MacNeil & Dockery 1984). The holotype USNM 376674, length 5.0 mm, with 2.0 mm, is a typical mitromorphine turrid of the genus *Mitrolumna*, and is rather similar to the South Carolina Miocene *Mitrolumna (Cymakra) mitrodita* (Gardner & Aldrich, 1919) [Fig. 38]. Species of the subgenus *Cymakra* are known from Miocene deposits of South Carolina and Florida, and the Vicksburg Lower Oligocene *M.(C.) tallahalaensis* is thus the oldest *Mitrolumna* from the new world. In Europe, *Mitrolumna s.str.* ranges from the Oligocene to Recent.

Order CEPHALASPIDEA

Superfamily BULLACEA

Family HAMINEIDAE Pilsbry, 1895

Hamineinae Pilsbry, 1895, Man. Conch. 15:351 (based on *Haminea* Leach in Gray, 1847). Atyidae Thiele, 1925, Wiss. Ergeb., deut. Tiefsee-Exp. "Valdivia" 17(2):231 (based on *Atys* Montfort, 1810) [non Atyidae de Haan, 1849, Fauna Japonica, Crust.(6):168, 184; nec Atyidae Dana, 1852, Proc. Acad. Nat. Sci. Philadelphia 6:13, 16 — nom. corr.].

The family-group name Atyidae Thiele, 1925 (erroneously credited to Thiele, 1926 in literature) in Mollusca — Opisthobranchia, is in current use in malacological literature (e.g. Wenz 1938; Grassé 1968; Keen 1971; Nordsieck 1972; Rosewater 1975; Powell 1979; Abbott & Dance 1982 etc.). The family-group name Atyidae Thiele, 1925, however, is not only a homonym of the earlier Atyidae de Haan, 1849 (based on *Atya* Leach, 1816) in Decapoda, but is also a synonym of the chronologically prior Hamineidae Pilsbry, 1895.

Thiele (1925) remarked that *Atys* Montfort, 1810, and *Haminea* Leach in Gray, 1847, were so closely related that they have to be placed in the same family-group, a conclusion which seems to be endorsed by most opisthobranch specialists.

The genus-group *Haminea* Leach in Gray, 1847 (type-species *Bulla hydatis* Linnaeus, 1758) erected by Gray (1847) as an independent taxon and not as a replacement name for *Haminioea* Turton & Kingston in Carrington, 1830, as sometimes suggested in literature, is nevertheless an objective synonym of *Haminioea* Turton & Kingston. This synonymy, however, does not disqualify Hamineidae Pilsbry, from valid usage as a family name for the group of opisthobranchs containing species of *Atys* and *Haminioea* (Article 40 of the Code of ICZN).

Family GLYCYMERIDIDAE

Genus *Glycymeris* da Costa, 1778

Glycymeris da Costa, 1778, Hist.Nat.Test.Brit. p.168. Type species by M *G.orbicularis* da Costa, 1778 = *Arca glycymeris* Linnaeus, 1758. Recent, European Seas.

Subgenus *Tucetona* Iredale, 1931

Tucetona Iredale, 1931, Rec.Austral.Mus. 18(4):202, 231. Type species by OD *Pectunculus flabellatus* Tenison-Woods, 1878. Recent, Southern Australia.
1939. *Tucetopsis* Iredale, Gt.Barrier reef Exp.Sci.Rept. 5(6):302. Type species by OD *Cardium amboinense* Gmelin, 1791 = *Arca pectunculus* Linnaeus, 1758. Recent, Indian Ocean.

***Glycymeris (Tucetona) pectunculus* (Linnaeus, 1758)** (Fig.39)

1758. *Arca pectunculus* Linnaeus, Syst.Nat. ed.10:695.
1791. *Cardium amboinense* Gmelin, Syst.Nat. ed.13:3255.
1798. *Arca* spec. Lamarck, Tabl.Encycl.Méth. pl.311, fig.5.
1819. *Pectunculus pectiniformis* Lamarck, Hist.nat.anim.s.vert. 6:53.
1939. *Tucetona amboinensis extra* Iredale, Gt.Barrier reef Exp.Sci.Rept. 5(6):302, pl.4, figs.14,14a,b.

TYPE LOCALITY. American Ocean = error! (*pectunculus*); Amboina, Indonesia (*amboinensis*); Asiatic and American Oceans = latter locality erroneous (*pectiniformis*); Queensland, Australia (*extra*).

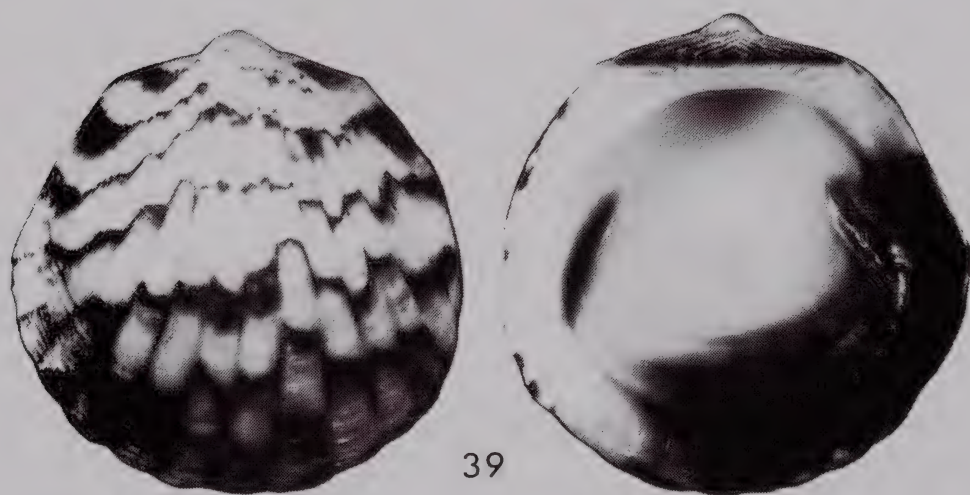


Fig. 39. *Glycymeris (Tucetona) pectunculus* (Linnaeus, 1758). Tavanipupu I, Marau Sound, Guadalcanal, Solomon Is; 46.0mm.

The species has been previously reported from Queensland, Australia and Papua New Guinea. The recent collection of specimens at Tavanipupu I, Marau Sound, Guadalcanal, Solomon Is (*leg.* N.Gardner), where the species is not uncommon, and Tanna I and Efate I, Vanuatu (*leg.* R.C. Willan), extends the species range farther into the Pacific.

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